



WHITEPAPER

The Return on Investment for an Integrated Tool

Standalone vs. Integrated Tools

In the fast-paced world of technology, Systems Engineering (SE) plays a crucial role in successfully completing complex projects. As organizations strive for optimal efficiency and excellence, the choice of software tools becomes essential.

Let's delve into the discussion of integrated versus standalone SE software tools. The difference between integrated and standalone systems engineering software tools lies in their approach to project management and collaboration.

Standalone tools operate independently, fulfilling specific functions within the systems engineering process. However, they often lack seamless integration with other tools and stages of the project lifecycle.

On the contrary, integrated tools like Innoslate provide a comprehensive platform that brings together various aspects of systems engineering. They enable

collaboration, data sharing, and offer a unified view of the project.

Integrated tools not only streamline workflows but also enhance communication, resulting in improved productivity, reduced errors, and significant cost savings. The interconnected nature of these tools ensures that changes made in one phase reflect across the entire project, promoting consistency and efficiency.

The choice between standalone and integrated systems engineering tools is crucial, as the latter offers a more comprehensive and interconnected approach to meet the evolving demands of complex projects.

This paper will explore how integrated tools like Innoslate outperform stand-alone systems engineering tools, proving to be a game-changer in project performance and Return on Investment (ROI).

Systems Engineering as an Investment

The Cost of Neglecting Systems Engineering

Studies have shown that allocating less than 10% of a project budget to Systems Engineering can result in approximately 100% budget overrun. Conversely, dedicating 10% of the budget to SE functions produces an astounding ROI of 1,000%.

The importance of strategic investment in SE cannot be overstated, and the right tools can make a significant difference.

Return on Systems Engineering Software Investments

Choosing an integrated tool like Innoslate over stand-alone systems engineering tools can double your investment. The long-term benefits far outweigh the initial costs, positioning organizations for sustained success and efficiency.

Effect of Project Challenge on ROI

As projects face increasing challenges, integrated tools prove to be resilient, boasting more than a 50% increase in ROI compared to stand-alone tools. Innoslate stands out by consistently delivering exceptional results, adapting to project complexities with unparalleled efficiency.

Labor Cost Savings

Integrated tools not only streamline processes but also yield substantial labor cost savings. Integrated tools lead the way by saving three times the amount a stand-alone tool would.

For instance, in the case of an XL company, integrated tools can save \$16.219M in labor, while a stand-alone tool would only save \$5.224M.

Productivity Improvement

The impact of integrated tools on productivity is evident, with a 34% increase attributed to fewer errors, faster processes, auto-generated products, eliminated tasks, shared information, and communication efficiency.

Innoslate excels in delivering these productivity benefits, ensuring projects stay on track and meet their goals with precision.

Innoslate vs. Competitors

Innoslate outperforms not only stand-alone tools (orange columns) but also other integrated tools (green columns) in almost every capability area.

Systems Engineering Capability and Related Tasks	Innoslate	MagicDraw	Enterprise Architecture	Cradle	Core	Deltek (Compass)	StarUML	Analytica	Vensim	Logical Decisions	Matlab/Simulink
Sys Engrg Planning	100%	40%	40%	80%	40%	60%	0%	0%	40%	0%	0%
SEMP	X	X	X	X	X						
WBS Preparation	X			X		X			X		
WBS Maintenance	X			X		X			X		
RAM	X					X					
Maintain/Evolve SE Mgt Plan	X	X	X	X	X						
Requirements Management	100%	100%	33%	100%	100%	0%	17%	0%	0%	0%	0%
Import Requirements Documents	X	X		X	X						
Analyze Requirements	X	X	X	X	X		X				
Manage Requirements	X	X	X	X	X						
Trace Requirements	X	X		X	X						
Allocate Requirements	X	X		X	X						
Import & Allocate Standards	X	X		X	X						
Design Synthesis	100%	100%	83%	66%	66%	0%	83%	0%	0%	0%	83%
Establish Design Definitions	X	X	X	X	X		X				X
Define/control Object Modeling	X	X	X	X	X		X				X
Design Element Modeling	X	X	X	X	X		X				X
Design Element Definition	X	X	X				X				X
Design Trade Studies	X	X									X
Software design	X	X	X	X	X		X				
Functional Analysis	100%	100%	50%	50%	50%	0%	50%	67%	50%	50%	83%
Functional Modeling	X	X	X	X	X		X	X			X
Walkthrough Simul.	X	X						X	X	X	X
Discrete Event Simul.	X	X						X	X	X	X
Monte Carlo Simul.	X	X						X	X	X	X
Functional Design	X	X	X	X	X		X				X
Functional Allocation	X	X	X	X	X		X				

Systems Engineering Capability and Related Tasks	Innoslate	MagicDraw	Enterprise Architecture	Cradle	Core	Deltek (Compass)	StarUML	Analytica	Vensim	Logical Decisions	Matlab/Simulink
System Operations	100%	91%	64%	64%	64%	45%	64%	9%	9%	18%	9%
System Deployment	X	X	X	X	X	X	X				
System Transitions	X	X	X	X	X	X	X				
System Interoperability	X	X	X	X	X		X				
System Operations Analysis	X	X						X	X	X	X
Maintenance & Repair, etc.	X	X	X	X	X		X				
Logistics Analysis	X	X								X	
System Retirement	X	X	X	X	X	X	X				
Ground Support Equipment	X	X	X	X	X	X	X				
System Training	X										
System Modification/Upgrade	X	X	X	X	X	X	X				
Operations Manuals/Procedures	X	X									
Specialty Engrg. Disciplines	100%	100%	100%	100%	100%	0%	7%	79%	79%	71%	79%
Reliability	X	X	X	X	X			X	X	X	X
Maintainability, Availability	X	X	X	X	X			X	X	X	X
Safety	X	X	X	X	X			X	X	X	X
Parts & Materials Engrg	X	X	X	X	X						
Human Interfaces	X	X	X	X	X		X				
EMI/EMC	X	X	X	X	X			X	X	X	X
Contamination, Corrosion	X	X	X	X	X			X	X	X	X
Survivability	X	X	X	X	X			X	X	X	X
Mass Properties	X	X	X	X	X			X	X	X	X
Life Cycle Costing (estimates, alloc)	X	X	X	X	X			X	X	X	X
Affordability	X	X	X	X	X			X	X	X	X
Producibility	X	X	X	X	X			X	X	X	X
Environmental	X	X	X	X	X			X	X		X
System Security	X	X	X	X	X						
Project Mgt	100%	42%	17%	50%	42%	50%	8%	8%	42%	17%	8%
Create Timeline	X					X			X		
Track Progress	X			X	X	X			X		
Model Program Processes	X	X		X	X		X				
Verify Program Models	X			X							
Estimate Costs	X	X		X	X	X				X	
Technical Mgt processes	X					X					
Project Planning	X	X	X	X	X	X			X		
Project Monitoring & Control	X	X	X	X	X	X			X		
Supplier Agreement Mgt.	X										
Technical Staff Training	X										
Organizational Innovation	X										
Causal Analysis & Resolution	X	X						X	X	X	X

Systems Engineering Capability and Related Tasks	Innoslate	MagicDraw	Enterprise Architecture	Cradle	Core	Deltek (Compass)	StarUML	Analytica	Vensim	Logical Decisions	Matlab/Simulink
Design Documentation (CM)	100%	66%	66%	100%	100%	11%	44%	0%	0%	0%	0%
Define Design Database Objects	X	X	X	X	X	X	X				
Capture Design Documents	X			X	X						
Maintain Design Documents	X		X	X	X		X				
Distribute Design Documents	X	X		X	X						
Establish/Maintain Design Baselines	X	X	X	X	X		X				
Design Documentation Standards	x	X	X	X	X		X				
Functional and Physical Baselines	X			X	X						
Change Control Practices	X	X	X	X	X						
Configuration Audits & Reviews	x	X	X	X	X						
Technical Risk Mgt	100%	0%	0%	100%	100%	100%	0%	50%	50%	25%	0%
Identify Risks	X			X	X	X					
Analyze Risks	X			X	X	X			X	X	
Mitigate Risks	X			X	X	X		X	X		
Risk reporting	X			X	X	X		X			
Technical Performance Mgt.	100%	33%	17%	50%	33%	0%	0%	17%	0%	33%	33%
Technical Performance analyses	X	X		X	X					X	X
Technical Reviews (formal)	X										
Technical Performance measures	X			X				X			X
Technical Performance status, doc	X	X	X	X	X						
Technical Decisions (process, doc)	X									X	
Qual. Assurance (products, process)	X										
Design Integration	100%	100%	100%	100%	100%	20%	80%	0%	0%	0%	20%
Design Engrg Integ.	X	X	X	X	X		X				
Specialty Engrg Integ	X	X	X	X	X		X				
Subsystem Interfaces	X	X	X	X	X	X	X				X
Hardware / Software Integration	X	X	X	X	X		X				
System Interfaces Management	X	X	X	X	X						
IVV	100%	44%	0%	100%	67%	22%	0%	0%	0%	11%	0%
Identify IVV "Test" Cases	X	X		X							
Develop IVV Plans	X			X	X						
Track IVV Status	X			X	X	X					
Create New Test Cycles	X			X							
Create Test Reports	X			X	X						
Validation Planning	X	X		X							
Test Planning	X	X		X	X	X					
Test Mgt. (e.g flight test)	X			X	X					X	
Test Reporting	X	X		X	X						

Compared to other integrated tools such as MagicDraw, Enterprise Architecture, Cradle, and Core, Innoslate emerges as the clear winner.

Over three years, Innoslate demonstrates a 1,117% greater ROI, with a 3-year Return on Assets (ROA) of \$215K, outperforming its competitors whose ROAs average at \$166K.

Innoslate's integrated approach proves to be the element for success, offering unmatched performance and great returns on investment. As organizations

continue to invest in improving project performance, choosing Innoslate becomes not just a preference but a strategy for those seeking excellence in the dynamic world of systems engineering.

Embrace the future of SE with Innoslate, where efficiency, cost-effectiveness, and superior results are integrated.



Statistics pulled from George Mason University School of Systems Engineering Fall 2020 project, "Return on Investment for Systems Engineering Tools," by Robert Combs, Jim Duffy, Jingyao Feng, and James Richardson.